SCIENCE & GOVERNMENT REPORT

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Some Unsolicited Advice for a New President

Dear Jimmy,

Someday soon, you're going to have to deal with the leaders of a peculiar slice of American society known as the scientific community. I've been watching them for a long time, and I'd like to tell you about them.

The elders of science are by and large a good bunch. They're generally pretty smart, eager to be of service, and gushing with interesting ideas about how to deal with a lot of problems that you're concerned about.

But science is an odd activity, and not surprisingly, its leaders have acquired some unusual characteristics. Perhaps the most basic is that they are extraordinarily insecure about the relative prosperity that they have experienced since World War II. As a result, they worry a lot about money and status, mainly because they are afraid that their big patron, government, is going to lose interest in them or become insensitive to their special needs, among which lots of time to produce tangible results ranks high. This produces a lot of nervous twitching among the statesmen of science.

First of all, they suffer from budgetary hallucinations which lead them to believe that the government once took good care of them but no longer does. More about that later.

For another thing, they're more hooked on ceremonials than any banana republic admiral. This addiction to symbols of affection gives you an easy way to make friends with them. Give them a dinner at the White House or pass out a few medals in the Rose Garden and they'll hail you as the new patron saint of science. But be sure to tell your speech writers to toss in a few kind words about basic research. That's particularly important when the inevitably sad returns come in from the Office of Management and Budget, because science has enough schemes in the hopper to throw you into bankruptcy. (Remember what Nikky Khrushchev is reported to have said when his scientists confronted him at budgetmaking time: "You must never believe all these things which the scientists say because they always want more than they can get — they are never satisfied.")

When you're dealing with scientists, what you have to keep in mind is that, regardless of the rank and honors they possess, and the deference accorded them by their colleagues and the public, their levels of good sense vary considerably. The reason for this is that in science, if you hit one homerun, you've got it made for all time. As a result, the leadership of the scientific community contains more than a few idiot savants — people who stumbled on something at a young age and who thereby received lifetime status as sages, not only in their field of achievement, but on all matters concerning mankind.

In this regard, it is useful to keep in mind the words of Robert Hutchins, who, from experience with scientists at the University of Chicago, concluded that "A scientist has a limited education. He labors on the topic of his dissertation, wins the Nobel Prize by the time he is 35, and suddenly has nothing to do. . .He has no alternative but to spend the rest of his life making a nuisance of himself."

That's worth remembering when the Nobel petitions

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In Brief

Washington is besieged by hordes of job seekers looking for avenues of influence to the Carter Administration, but Carter and his small circle of advisers are maintaining silence and taking their time. With cabinet-level appointments still undecided, it's doubtful that the second-echelon jobs — which is where the research-related posts are situated — have yet been carefully considered. IBM's Lewis Branscomb holds the most-mentioned title for White House science adviser, but as Branscomb coyly points out, none of the mentioning has been done by Carter's people.

Among the appointments awaiting Carter is the directorship of the National Bureau of Standards, which has been filled on an acting basis by Ernest Ambler since Richard Roberts switched to ERDA last year. President Ford nominated Ambler for a full-fledged appointment last June, but the Senate Commerce Committee failed to act. The reason apparently has nothing to do with Ambler, who is well regarded by the Committee. Rather, it was felt that since the director serves at the pleasure of the President, the appointment should await the outcome of the election.

Guy Stever, rounding out his government service in the post of White House science adviser, says he'll probably retire or do some consulting after leaving office in January. Recently turned 60, Stever says a remote possibility would be fulltime head of "a big organization, if the right offer comes," but he said he's not keen for that choice.

...And Get Set for the Nobel Laureate Petitions

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start coming in. There is no proposition, no matter how foolish, for which a dozen Nobel signatures cannot be collected. Furthermore, any such petition is guaranteed page one treatment in the *New York Times.* In most cases, no more than a tempest in a test tube is involved.

You'll have your own science office and handpicked science adviser. Whoever the choice is for that job, you can be sure that he'll be eager to serve you well, since the elders of science have fresh in mind Mr. Nixon's abolition of their cherished place on the White House staff. (No slur on women intended in reference to your choice of an adviser. It's bound to be a male, since the science-policy councils contain only a few token women. In fact, the Cosmos Club, Washington's favorite watering place for the statesmen of science, still does not admit women to membership, though several years ago, it did grant them the privilege of using the front entrance for guest appearances.)

In any case, your science office will be on good behavior, and is not likely soon to revert to its old delusion that it's there to serve as an embassy for science, rather than as the president's helper. That's what got it into serious trouble two presidents back.

In your dealings with the scientific community, you're going to encounter one of the strangest institutions on the American landscape, an outfit with the unmanageable official title of The National Academy of Sciences, National Academy of Engineering, Institute of Medicine, National Research Council. Let's call it the Academy, for short.

On paper, at least, the Academy represents a brilliant idea — an institution embodying the cream of science and technology, located close to but independent of government, and formally chartered by Congress to respond to government requests for scientific and technical advice. The Academy, however, has lots of troubles.

The permanent bureaucrats who staff the government that you will head have become skilled at phrasing questions in a fashion that virtually dictates the answers they want to receive from the Academy. The Academy has been struggling against this with some success, but the prestige value of its opinions are so great, that constant vigilance against this sort of manipulation is required. One reform you might consider would be to require your science adviser to approve any questions that are handed to the Academy by federal agencies. Also, it would be useful to give the Academy some incentive for completing its studies in less than glacial time. If the customary pace prevails, you'll be gearing up for re-election by the time they've completed studies that began this year.

The changes that I've recommended will evoke doomsday oratory from the president of the Academy, who sometimes behaves like the Idi Amin of science policy. But you ought to know that the Academy is so broke that it's looking for an unrestricted government handout. The US Treasury is the only bank in town for its swollen staff, and they'll do business with you, no matter how much they grouse about the conditions.

Now, the most critical matter facing science and government — money.

You can be certain that no matter how much money you recommend for science, the leaders of the community will say it's not enough. The question of how much *is* enough for science is no different from the question of how much is enough for housing, defense, transportation, and so forth. There is no precise answer and the best way to go about it is through the traditional process of study, negotiation and politicking. Since we swept all the Nobel prizes this year, we apparently are some safe distance from the descent into darkness that our scientific leaders have routinely prophesied for the last dozen years.

Nevertheless, they're going to try to embarrass you with fanciful assertions that things used to be much better. Consider, for example, a dour document recently produced by the National Science Board, *Science at the Bicentennial,* wherein administrators and scientists at several hundred research institutions unburden themselves on the infirmities of American science. The Board explains that it "undertook this collection of views in response to clear evidence that scientific research, after a period of relative well-being, is today exposed to severe stress."

When was this "period of relative well-being"? Apparently, it was in the "1960s," which a subheading in the report refers to as the time of "A Mature and Prosperous System of Support." During the period 1961-1970, the report tells us federal support for research and development rose from $9.3 billion to $14.8 billion, an increase of 59 per cent in 10 years.

What the report does not tell us is that from 1970 to 1977, federal support for research and development rose from $14.8 billion to $24.7 billion, an increase of nearly 67 per cent — in eight years.

Apply a discount for the severe inflation of recent years, and the 1970-77 period turns out to be less affluent than the raw numbers indicate. Nevertheless, in terms of money, the reference to past well-being arises more from nostalgia for the gold rush spirit of the 1960s than any cool appraisal of comparative resources.

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Europe Urged to Adopt UK's Genetic Rules

London. European researchers have been advised to adopt the British approach to the control of "genetic-manipulation" experiments. But in Britain, the research community is far from convinced that the system it has been offered in draft regulations circulated by the Health and Safety Commission (HSC) will work. Some scientists and scientific organizations are claiming that the proposed mandatory notification and policing by the HSC is excessively bureaucratic and covers research that poses no dangers.

Adoption of the British system has been recommended by the European Science Foundation (ESF), which is a meeting ground and clearinghouse for the agencies that support basic research in most European nations. ESF based its recommendations on an examination of guidelines drawn up by the US National Institutes of Health (NIH) and those in the Report of the Working Party on the Practice of Genetic Manipulation published in the UK by the Department of Education and Science (SGR, Vol. VI, No. 15).

The British Working Party, chaired by Professor Sir Robert Williams, director of the Public Health Laboratory Service, recommended the creation of a Genetic Manipulation Advisory Group (GMAG) to advise on appropriate precautions based on a model code of practice. The Health and Safety Executive (HSE), a newly created independent agency, would enforce the GMAG recommendations under the terms of the Health and Safety at Work Act.

The HSC's draft regulations call for the compulsory notification of genetic manipulation experiments, employing, however,a definition that goes far beyond the field of research on recombinant DNA which sparked off the whole business. The HSC says that it wishes to include within the scope of the regulations "all work involving genetic manipulation of microorganisms which could present any hazard, direct or indirect (for example, from disease of animals or plants) to the health and safety of workpeople or the general public."

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DEAR JIMMY

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Furthermore, if 1961-70 was the golden age, why did Jerome B. Wiesner, president of MIT, say in 1969 that "there has been no time in the post-World War II period when the situation looked as bleak, nor were our scientists more discouraged"?

The basic problem, it seems, is that the leaders fail to distinguish between the state of science and the prosperity of scientists. Science in the US is in pretty good shape, but not to the point that any bright kid who knows which end of a test tube is up can count on a government grant. The elders of the establishment, however, won't be tranquil until that nirvana is achieved.

They're also going to badger you about foreign scientific achievements, though on a selective basis. Researchers in other countries generally stand in awe of the scale, prowess and vitality of American science. But you can be sure that as soon as another country plugs in a research machine not yet available here, our scientists will proclaim doom unless we quickly build a bigger one.

Which brings us to another point, Jimmy — the rhetorical extravagance of the statesmen of science. Maybe it's because they have to be cautious and precise in their scientific duties; but whatever the cause, they recognize no territory between paradise and hell. Consider, for example, a recent statement by Harold Agnew, director of the Los Alamos Scientific Laboratory. Government red tape, he said, "will in the not too distant future completely eradicate our Nation's world position in research and technology."

Completely eradicate?

That's what he said.

Well, that's my post-election contribution. Good luck with the scientists. You'll need it.

Sincerely,

D. Greenberg

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...But British Scientists Have Reservations

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The UK government, through the Department of Education and Science, which funds most of the country's academic research, accepted the findings of the Williams committee. It has taken the first step toward setting up the GMAG by making Sir Gordon Wolstenholme chairman. His first move was to visit Washington for discussions with the NIH.

The job of policing the system was given to the recently formed Health and Safety Executive. This division of responsibility forestalls any conflict that DES would face if it were both supporter and regulator of research.

One reason why the ESF prefers the British approach to that of the NIH is because the British proposal relies on physical containment rather than biological containment. "Biological containment," says the ESF, "means the use of disabled experimental organisms with a severely limited capacity to survive outside the artificial conditions provided in the laboratory. Physical containment means physical facilities and safe handling techniques designed to prevent the organism from infecting laboratory staff or escaping from the laboratory." However, the Williams committee did call for the further development of disabled organisms.

The UK system is better, says the ESF, because it would apply to all laboratories, whereas the NIH is responsible only for establishments receiving NIH funds. (Most federal agencies, however, have since agreed to adopt the NIH guidelines.)

The ESF also says that "for broadly comparable categories of experiments, the UK system requires a slightly higher level of physical containment, which involves tried and tested procedures, rather than specified levels of biological containment, which, at the present time, is difficult fo achieve, and is also of somewhat debatable reliability."

Despite its preference for the British proposals, the ESF was careful not to cast doubts on the US approach, noting that it opted for the UK approach because it would have been impossible to pick the best bits out of each national system without running the risk of "the emergence of a lowest common denominator for the safety precautions proposed for the different classes of experiments."

The ESF believes that it is important, "both for the safety of the public and for the development of science, of ensuring that the same experiments are not classified as differing in levels of risk, and hence level of containment in the different countries." Countries with less stringent controls might suddenly find an unaccustomed enthusiasm among some researchers. The ESF suggests that in European countries "national registers of laboratories carrying out Recombinant DNA research be established and that all laboratories, whatever their source of financial support, be legally required to declare relevant aspects of their programmes of Recombinant DNA research to a national register."

Despite the ESF's attitude to the British proposals, there has been widespread criticism of the HSC's draft regulations. In an open letter to the Health and Safety Executive published in *Nature,* Michael Ashburner, of the Department of Genetics at the University of Cambridge, accuses the HSE of paying too much attention to the "mutant monsters so vividly portrayed on television every Saturday evening in Dr. Who" (a long-running science fiction series).

Ashburner voices the fears of many researchers when he complains that an advisory group that can be overridden by the HSE would lose respect of the scientific community and the public. "You do not have the standing in the scientific community required for this job," Ashburner warns the HSE.

Another complaint — and one that the HSE accepts — is that the HSE goes far beyond the areas of research that originally led American scientists to raise their doubts about the safety of research on recombinant DNA. "Instead of being content with covering just 'genetic engineering' experiments, your draft regulation would control the *whole of microbial genetics,"* says Ashburner. The regulations have been variously interpreted as covering yogurt making, much school research, and even procreation.

The scientific community also fears that the HSE's moves will bury it in red tape, and maybe even drive some researchers underground.

John Locke, director of the HSE, acknowledges that the proposed guidelines, especially the definition of "genetic manipulation," are too broad. He hopes that the debate now under way can produce a definition that does not extend to perfectly safe work, but includes all potentially hazardous work. However, Locke maintains that "it seems to us we must err, if we err at all, on the side of having rather more than we want notified rather than too little." —MK

ACS Picks First Woman President

The American Chemical Society is about to get its first woman president in its 102-year history. Anna J. Harrison, professor of Chemistry at Mount Holyoke College, Massachusetts, was elected last month and will take office in 1978. Harrison, a member of the National Science Board, failed in two previous attempts to win the ACS presidency.

NRC Committee Firm on Cutbacks in Ph.D.s

The National Research Council's Congressionally mandated report on biomedical and behavioral research training (SGR. Vol. VI, No. 13) sent shocks through scientific circles a few months back when it called for a shift in emphasis from Ph.D. production to postdoctoral training at the National Institutes of Health and the Alcohol, Drug Abuse, and Mental Health Administration.

The report was the second in a continuing series from the NRC Committee on a Study of National Needs for Biomedical and Behavioral Research Personnel, a group which was all but cornered into the historically messy and risky job of manpower assessment and projection by the National Research Service Awards Act of 1974. With an obvious appreciation of fiscal and political realities and a look at the contracting academic job market, the Committee, headed by Kaiser Foundation President Robert Glaser, came up with recommendations that were incompatible with the arguments for more training support regularly issued by organizations representing the scientific disciplines in question.

Social Science Report

The report took the basic tack that it is time to reduce Ph.D. production and to gear the already substantial doctorate pool toward work on increasingly sophisticated and interdisciplinary research problems, a task, the Committee concluded, which is best undertaken at the postdoctoral level. At the same time, the report argued for continuing to support some graduate training, but on a reduced scale.

Although the directors of the federal agencies in the research training business have let it be known that they have no quarrel with these objectives, the response has been different in other quarters. In fact, to some, the panel was doing no more than sanctioning what the Office of Management and Budget has been trying to do for some time, namely, stunt the growth of research by restricting it at the entry point. Concern over the proposed shift to postdoctoral training support has run especially high in the behavioral and social sciences, fields in which the Ph.D. traditionally has been the "terminal" degree and the loss of predoctoral funds would be a particularly hard blow.

The only consolation was the possibility that the Committee was over-reacting to political considerations, did not really believe in what it was saying, and would be willing to negotiate.

However, any such fantasies should have been dispelled at a meeting Nov. 4 called by the Committee to give individuals and scientific organizations their day in court. During the meeting, which took the form of a hearing, Committee members, seated on the stage, challenged the passing parade of science representatives to explain why Ph.D. production should not be slowed and to show it by way of firm facts and figures.

The meeting was held at the National Academy of Sciences, which is the parent organization of the NRC.

Chairing the session, psychologist Henry Riecken noted that the Committee needs all the help it can get and repeatedly invited witnesses to submit data to support their nearly universal claims that there is an increasing need for trained personnal in their respective fields. It soon became clear that the Committee has a good deal more confidence in its own, if imperfect, conclusions on personnel needs than it does in the relatively partial assessments delivered by most of the science spokespersons in attendance.

One after another, representatives of professional organizations argued that while the academic job market might look grim, in general, either their fields were exceptions to the rule, or there was nevertheless a compelling national need to increase their numbers. The message was so prevalent that the meeting was jolted when Jack Rakosky, a young psychologist and recent postdoctoral fellow, said he thought the Committee was pretty much on course. Rakosky spoke only for himself, and so radical was his view that Riecken dryly told the session, "He volunteered and is not a stooge of the Committee," and "He is not collaborating with the vice chairman in a social psychological experiment."

There is some indication that the Committee is seriously concerned about refining its recommendations

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Pay Causes NIH Brain Drain

The brain drain from the National Institutes of Health to academia and private industry is intensifying, and "the problems we face as a result of it are much more critical now than in the past," NIH Director Donald S. Fredrickson told a commission looking into government pay scales last month.

Fredrickson noted in particular that two top NIH officials recently quit their government jobs for more lucrative posts. They are Frank Rauscher, director of the National Cancer Institute, who took a $75,000 - post at the American Cancer Society, and NIH Deputy Director R.W. Lamont-Havers, who left in September for a $58,000-a-year-job in Massachusetts General Hospital. Both were earning $37,800, the top Civil Service rate, at NIH.

...But Agrees That Exceptions Should Be Made

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to take into account special research areas or disciplines in which predoctoral training is particularly important. The report itself singled out health services research, or research relating to the delivery of health care services, as one area in which research training is needed on every level. There is also some sympathy for the plight of predoctoral training in anthropology, which is unique because it is at that level that students perform the costly fieldwork on which the Ph.D. is based. Few students can foot the bill for foreign study.

Nevertheless, there was little evidence that the Committee was particularly impressed by the various pleas it heard at the meeting, with one major exception. That was the argument that the Committee had ignored the effect of its recommendations on efforts to increase the proportion of minority students in research training. Almost all organizational representatives stated that if predoctoral training shrinks, the first to suffer will be minorities and women. A number of minority scientists argued the same point. Psychologist Dalmas Taylor, who administers one of the special minority fellowship programs funded by the National Institute of Mental Health and run by several professional organizations, including the American Psychological Association, noted that predoctoral training support enables minority students to "expend their energies on the rigorous undertakings of graduate education as opposed to concerns with survival, which often take precedence for so many of this country's minority group individuals."

Committee members' comments and questions suggested that they thought the issue deserved their attention but hinted that they did not see things precisely the same way most participants did. While most used the minority issue as one important reason to maintain, if not increase, predoctoral support, Committee members suggested that the fields had not done too well in increasing minority participation when times were good.

Riecken noted that at least one inference one could draw from the various arguments "is that training grants were not terribly successful in providing a cadre of minority professionals." Committee colleague and sociologist David Mechanic suggested, along with Riecken, that targeted programs which provide direct support to minority students might make more sense than enlarging the entire predoctoral population in the hopes of capturing more minority students.

In addition to its large public meeting, the Committee held a more intimate session the following day to hear from NIH Director Donald Fredrickson and ADAMHA Director James Isbister. Unlike the scientific organizations, the agencies have generally agreed with the Committee's position on boosting postdoctoral training. However, they have been concerned that if the Committee's recommendations are too specific, and if those recommendations are woven into the research training legislation, the agencies may wind up locked into restrictive research training policies for some time to come.

The Committee indicates that while it may refine this year's recommendation's somewhat in next year's report, it is extremely unlikely that it will make any major changes. Meanwhile, the National Research Service Awards Act comes up for renewal next year, and Congress is due to complete its work on the legislation about the same time the Committee releases its next report. Whether the next version of the NRSA will reflect the Committee's labors is anybody's guess. But the signs are that when Congress gets around to looking at the group's products, it will find an independent stance that amounts to more than a sum of the views of the professions from which the Committee's members hail. —PM

Letter to the Editor

Your October 15 *Report* (p. 7) states that "Ford has nominated an agricultural scientist to the National Science Board for the first time." While reasonable persons might differ over the application of the term, we think there have been at least three other Board Members who would qualify.

Dr. E.C. Stakman, a charter Member of the Board from 1950-54, was at that time Chief of the Division of Plant Pathology and Botany at the University of Minnesota. He had taught plant pathology at Minnesota and had been a pathologist and agent with USDA. Dr. Conrad A. Elvehjem, who served on the Board from 1960-62, was a biochemist concerned with food and nutrition. At the time of his NSB service he was President of the University of Wisconsin. Dr. Clifford M. Hardin was appointed to the Board in 1966 and remained a Member for a time following his appointment as Secretary of Agriculture in 1970. Dr. Hardin is an agricultural economist who had taught agricultural economics at Michigan State College and at the University of Nebraska, and who was Chancellor of the University of Nebraska at the time of his appointment to the Board. He had also been Director of the Agricultural Experiment Station and Dean of Agriculture, University of Nebraska.

Patricia E. Nicely, Head,
Congressional Liaison Branch,
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In Quotes: Nuclear "Safeguards" Are an Illusion

Expressions of concern about the possibility that nuclear exports will lead to the proliferation of nuclear explosives are frequently met with the argument that a strengthened system of international safeguards will take care of the problem. In a recent speech at MIT, Victor Gilinsky, a member of the Nuclear Regulatory Commission who has often dissented from his colleagues' opinions on export matters, sharply criticized past US nuclear policies in general and the reliance on safeguards against diversion of plutonium in particular. An extract from his speech follows:

International action to control proliferation dangers associated with the civilian nuclear fuel cycle depends critically on our understanding of two facts: first. . .that nuclear weapons can be manufactured from reactor-grade plutonium; and second, that for any nation that has done its homework, separated plutonium — in either metallic or oxide form — can be suddenly appropriated from its storage place and inserted in war heads within days. A recent IAEA (International Atomic Energy Agency) document acknowledges this latter point. It concludes that the safeguards system must be able to function on the same time scale. The Agency does not appear, however, to have seen the vital implications of these facts, which is that separated plutonium is not safeguardable by any means now available to us — we cannot count on warning in time to head off an illicit weapons effort. . .

To raise questions about these and other matters is to offend the safeguards cult which has grown up over the years. Any unease about how well safeguards were working has been put down as damaging to the efforts to built up their acceptability worldwide. Doubts about the wisdom of nuclear exports to unstable countries or regions have been met with a frequent official response that the introduction of safeguards in such situations made the risk worth taking. In fact, safeguards have taken on a life of their own. Any opportunity to spread the gospel of safeguards among the unbelievers — those reluctant, for example, to foreswear nuclear weapons by signing the Nonproliferation Treaty — actually appears, in some cases, to be the rationale for a nuclear export. . .

In my view, nuclear commerce muct be conditioned on a common understanding that certain activities are inherently dangerous, cannot be safeguarded when conducted on a national basis, and must therefore be collaboratively managed."

House Committee Criticizes Agricultural Research

Echoing complaints raised by various groups in the past few years and adding some of its own, the House Committee on Science and Technology has produced a critical analysis of the United States' agricultural research efforts. On the basis of extensive public hearings conducted last session, the Committee has offered a slew of recommendations for reform, ranging from more support for basic research to reorganization in the Department of Agriculture.

Produced under the Committee's authority to keep a general eye on the federal government's research activity, the report will add some impetus to legislation, expected to be introduced early next year, to beef up the agricultural research system. A bill aimed at channeling more funds into agricultural research, particularly into grants to individual researchers awarded on a competitive basis, was introduced last year by Rep. William Wampler (R-Va.). Though the bill was passed easily by the House (SGR Vol. VI, No. 3), it died in the Senate.

The House Committee's report proceeds from the observation that though "the US agricultural research system has no present equal and has served the country well," it could benefit "from innovations in its management structure and in the procedures used to coordinate its research efforts."

Among the innovations suggested by the Committee are an examination of "the leadership role of the Department of Agriculture in supporting the bulk of the federally funded agricultural research programs." In particular, the Committee notes that "criticisms have been leveled at the Department of Agriculture which suggest to some that any new or increased federal investment in agricultural research should be provided to departments or agencies other than USDA."

Another suggestion is that the quality of research could be improved by making more money available for competing grants.

The report, *Special Oversight Review of Agricultural Research and Development,* is available without charge from the Committee on Science and Technology, US House of Representatives, Washington, DC 20515.

Nuclear Commission Rejects Aid for Critics

For nearly two years, the Nuclear Regulatory Commission (NRC) has been considering a proposal to provide cash aid to financially hard-pressed groups which take part in its regulatory proceedings, a proposal which could provide much-needed support for the chronically underfunded anti-nuclear movement. But last week, a majority of the Commissioners said no.

In a 52-page decision, three of the four Commissioners argued that providing cash aid to anti-nuclear groups would not help NRC resolve safety and environmental problems. They also claimed that NRC probably lacks legal authority to hand out public money for the support of groups pushing particular viewpoints. However, the fourth member of the Commission, Victor Gilinsky, took issue with most of those arguments, suggesting that a small investment in aiding public participation "would be as well spent for public protection in the regulation of nuclear power as comparable sums expended in our research, regulatory, or administrative programs."

The Commissioners, however, all agreed on one point. NRC will seek funds from Congress next year to assist intervenors in hearings concerned with whether the nuclear industry should be allowed to separate plutonium from nuclear wastes and recycle it as reactor fuel. The issue is so important, and has so many implications, that the Commissioners agreed that public participation should be encouraged as much as possible. The hearings, which are expected to last for many months, began on November 30.

The question of whether to provide cash aid to public interest groups taking part in regulatory proceedings is likely to be the subject of some legislative activity next year. Several bills aimed at providing such assistance were introduced last session, and Congress has already provided authority to the Federal Trade Commission to assist participants in its proceedings. An FTC staff report has concluded that the assistance program has been working well so far. The Food and Drug Administration and the Environmental Protection Agency are also considering assistance schemes.

Because of a recent decline in foundation support, many public interest groups are in financial trouble and, though they have not been doing badly in regulatory proceedings and courtroom battles, they are always hopelessly outmatched by industry opponents in terms of legal and research resources.

Noting that "my own experience as a Commissioner, time and again, has been that external intervention has provided the impetus for necessary Commission action," Gilinsky concluded that "we cannot afford to be neutral about whether participants other than applicants and their industrial suppliers appear in our proceedings."

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